### UNITED STATES DISTRICT COURT DISTRICT OF PUERTO RICO

In re:

PROMESA
Title III

THE FINANCIAL OVERSIGHT AND
MANAGEMENT BOARD FOR PUERTO RICO,
No. 17 BK 3283-LTS

as representative of (Jointly Administered)

THE COMMONWEALTH OF PUERTO RICO, et al.,

Debtors.

In re:

PROMESA
Title III

THE FINANCIAL OVERSIGHT AND MANAGEMENT BOARD FOR PUERTO RICO,

as representative of

PUERTO RICO SALES TAX FINANCING CORPORATION,

Debtor.

Title III

No. 17 BK 3284-LTS

# DECLARATION OF MARK ELLIOTT, *PRO SE*, IN OPPOSITION TO ENTRY OF AN ORDER APPROVING THE SECOND AMENDED TITLE III PLAN OF ADJUSTMENT OF PUERTO RICO DALES TAX FINANCING CORPORATION.

- I, MARK ELLIOTT, hereby declare pursuant to 28 U.S.C. 1746 as follows:
- 1. I am the founder of the Registered Investment Advisory Firm Elliot Asset Management, a Boston-based independent investment advisory firm. I have a BS in Molecular Biology, Magna Cum Laude, from the College at Charleston. I attended Medical School at Dartmouth College and completed graduate coursework in Business Harvard University's Executive Education Program.
  - 2. I have passed the following industry exams and obtained the following licenses: Series

- 63, Series 65, and Series 66.
- 3. I have been investing professionally for family and friends informally since 1999, and I founded Elliott Asset Management in 2006, which acts in a fiduciary capacity providing hedge fund style investments to individuals at a low cost.
- 4. Elliott Asset Management has advised many of the world's largest financial entities, including The Gartmore Group, Goldman Sachs, The China Pilot Free Trade Zone and Economic Reform Team, provided analysis to C level executives at Credit Agricole, People's Daily (Official Party Newspaper of the People's Republic of China) and other small and large business entities from family enterprises to those with 50,000+ employees.
- 5. I have been featured in and have been interviewed for pieces in various publications including The Wall Street Journal, The US News and World Report, Investors Business Daily, Yahoo Finance, The College Investor, and Beijing Television.
- 6. My firm has a proven track record of success; our business model has beaten over 99% of investment funds of all sectors and types over the past ten years.
- 7. I have submitted an Objection to the Entry of an Order Approving the Second Amended Title III Plan of Adjustment of Puerto Rico Sales Tax Financing Corporation (the "Objection") (Dkt. 4598).
- 8. I submit this declaration (the "Declaration") in support of my Objection. The scope of my testimony is limited to the specific matters set forth in my Objection, and the additional matters presented herein.
- 9. The Proposed Settlement is Premature Unless and Until the Issue of "Available Resources" is Decided. The COFINA enabling legislation specifically states that the Dedicated Sales Tax Fund ("SUT") (which secures COFINA bonds) shall not constitute resources available

to the Commonwealth of Puerto Rico. The Plan, though, provides for portions of the SUT to be distributed not only to COFINA bondholders, senior and junior, but to General Obligation ("GO") bondholders in satisfaction of their claims. The Plan, then, is in direct opposition to COFINA's duly enacted enabling legislation. Further, confirmation of the Plan does not solve this issue because the new COFINA bonds would be secured by the same tranche of SUT taxes.

- 10. An Alternate Plan is Available which Treats COFINA Bondholders Equally. Putting aside the fact that there exists enough revenue to cover all existing COFINA bonds, and since most outstanding COFINA bonds are callable, the Commonwealth could immediately call the existing bonds and then issue new bonds with lower interest rates. The Commonwealth would save money on interest going forward and satisfy 100% of it's outstanding, and constitutional, obligations to COFINA bondholders.
- 11. The Takings Clause Issue. All COFINA bonds are secured by specific SUT revenue. The proposed treatment of Junior Bondholders (who bought in at par) will essentially strips these bondholders of the bond's value, to the benefit of the Senior and GO bondholders. The newly issued COFINA bonds will suffer from several issues that bear on value, not the least of which is the fact that the new bonds will be secured by the same tranche of SUT revenue as the current bonds. Therefore, the Junior's will in no way be justly compensated for the loss of at least 50% of the bond's face value.
- 12. The Senior Coalition Did Not, and Does Not, Represent Junior Bondholder Interests.

  Junior bondholders outnumber Senior bondholders in both numbers and amount invested.

  Juniors tend to include (prior to the instant litigation) smaller investor groups and island natives, such as the Declarant and Declarant's business. The Senior Coalition's only claim to Junior representation is the fact that many Senior Bondholders also hold positions in Junior Bonds.

However, those holders bought in to Junior bonds only after the instant dispute began and, as a consequence, enjoyed severely discounted prices. The Senior Coalition now enjoys position in Juniors which would ensure a profit even at the Plan's severely discounted rate. The Senior Coalition now proposes a plan which it helped negotiate and which benefits The Senior Coalition (and it's Junior Bondholder contingent) to the disadvantage of Juniors who bought in at par value. The Senior Coalition does not represent the average Junior Bondholder, and the Senior Coalition, by virtue of its position in Junior Bonds, is hopelessly conflicted.

- 13. <u>Juniors Will Receive Less Than Stated Value.</u> Junior Bonds are currently non-callable for seven (7) years and pays a tax-free yield of 6.75%. If, as proposed, the bond becomes a lower coupon with a (mostly) taxable payout, the value loss would be substantial. As shown in the attached Exhibit 1, assuming a 40% tax rate on the Junior's 54.6 recovery rate, the actual recovery will be below 50% 48% in fact. See attached **Exhibit 1**, *Bond Value Calculator* 74529jhu2 Example JR Calculation Prevent Value Discount.
- 14. <u>Seniors will Receive More than Stated Value.</u> As opposed to the Junior calculation above, Senior bondholders stand to gain more than stated in the Plan. In fact, the value is well above par (\$1,256.91). Furthermore, this is more than the Seniors would receive if the bonds were called and replaced (see above argument #10 and Objection Point IV, Dkt. # 4598, pg 8-9). See attached **Exhibit 2**, *Bond Value Calculator Srs If Taxable Value*.
- 15. <u>Seniors Will Benefit by Electing Non-Taxable Status.</u> As currently the case, Senior bonds are taxable. If they were to remain taxable, the value of the yield would be \$1,064, a much lower value that if/when they become tax free. See attached **Exhibit 3**, *Bond Value Calculator*, *What It Should be Trading at Shows Work!* 
  - 16. The Plan Contemplates Substantially Higher Yields than Currently Projected. The

Case:17-03283-LTS Doc#:4769-1 Filed:01/14/19 Entered:01/14/19 13:14:23 Desc: Exhibit Exhibit A - Mark Elliot Declaration with Exhibits Page 5 of 27

attached Exhibit 4 suggests that if the bonds were immediately called at 100% par, the yield would be 2-3% (under normal conditions). The plan, however, calls for yields as high as 6%. The Commonwealth could refinance (see above argument #10 and Objection Point IV, Dkt. # 4598, pg 8-9) and save substantial amounts of money by doing so. See Attached Exhibit MSRB Sr. Coupon Bond Maturing 2020 issued 2011.

Dated: Boston, Massachusetts.

14 January 2019

<u>By: /s/ Mark Elliott</u>

Mark Elliott

1/13/2019 Case:17-03283-LTS Doc#E4760246 carilladir:001/dat4/Str0udEntexard:01/stavs100-dat8:14:23 Desc Exhibit Exhibit A - Mark Elliot Declaration with Exhibits Page 6 of 27

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**EXHIBIT 1** 

<b>Bond Value Calculator</b>		
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### Bond Value Calculator to Calculate and Learn Valuation/Pricin

This free online Bond Value Calculator will calculate the expected trading price c par value, coupon rate, market rate, interest payments per year, and years-to-market rate in the coupon rate in the coup

Plus, the calculated results will show the step-by-step solution to the bond valua as a chart showing the present values of the par value and each coupon paymer

If you don't know the answer to the questions, "What are bonds?", "How do you of a bond?", or "How do bonds work?", be sure to visit the <u>Yield to Maturity Cal</u> includes a basic definition of bonds and a brief explanation of how they work.

### Also on this page:

- · How to calculate the value of a bond.
- · Why do bond prices change?
- Why do bond prices and interest rates move in opposite directions?

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# Bond Value Calculator Calculate the expected trading price of a bond. New! Save your entries under the Data tab. Data record: None Load Sample Entries Reset Par value (\$): Coupon rate (%): 8.125

### https://www.free-online-calculator-use.com/bond-value-calculator.html

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Bond	Value	Calculator	
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## Current market rate (%): TT.Z5 Years to maturity (#): **Calculate Bond Price** \$480.15 Bond value: Given the current market rate of 11.250% for a similar bond, a bond with a face value of \$564.00 and paying a coupon rate of 8.125% (compounding semiannually), should be selling for \$480.15 (selling at a discount). Here is how I arrived at my answer: **Variables** C = coupon payment = \$45.83 (Par Value \* Coupon Rate) n = number of years = 7 i = market rate, or required yield = 11.250% = 0.11 k = number of coupon payments in 1 year = 2 P = value at maturity, or par value = 564 **Present Value of Ordinary Annuity Formula** Plug In The Variables and Solve $1 - \left[ \frac{1}{(1 + 0.1125/2)^{7^{*}2}} \right]$ $\left[\begin{array}{ccc} 1 & - \left[\frac{1}{(1+0.0563)^{14}}\right] \\ \hline & 0.0563 \end{array}\right]$ BP = 22.91 \* 9.51 + 262.15 BP = 218.00 + 262.15 BP = \$480.15

### **Or Solve Using Spreadsheet**

You can also find the bond price using a spreadsheet to calculate and sum the present values of the par value and all of the coupon payments, like this:

End of Year	Interest	Principal	Present Value	

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### **Bond Value Calculator**

	· ·		
2.00	\$22.91		\$18.41
2.50	\$22.91		\$17.43
3.00	\$22.91		\$16.50
3.50	\$22.91		\$15.62
4.00	\$22.91		\$14.79
4.50	\$22.91		\$14.00
5.00	\$22.91		\$13.26
5.50	\$22.91		\$12.55
6.00	\$22.91		\$11.88
6.50	\$22.91		\$11.25
7.00	\$22.91		\$10.65
7.00		\$564.00	\$262.15
		TOTAL	\$480.15

Tap the **Data** tab to save this set of entries to your current web browser so you won't have to start over from scratch on your next visit. Subscribe to the <u>Ad-Free Cloud Version</u> to save your entries to a secure online database, allowing you to access your saved entries from any device or web browser.

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Learn: What YTM is, what bonds are, and what makes them difficult to compare to one another.

- Bond Yield to Maturity Calculator

### Learn

What bond valuation is and how to calculate the value of a bond.

### What is Bond Valuation?

Bond valuation is a method used to determine the expected trading price of a bond.

The expected trading price is calculated by adding the sum of the present values of all coupon payments to the present value of the par value (no worries, the bond value calculator performs all of the calculations for you, and shows its work).

### How To Calculate The Value of a Bond

Since the value of a bond is equal to the sum of the present values of the par value and all of the coupon payments, we can use the *Present Value of An Ordinary Annuity Formula* to find the value of a bond.

### **Bond Valuation Example**

Suppose XYZ issues ten-year bonds (par value of \$1,000.00) with an annual coupon rate of 10% semi-annually. Similar 10-year bonds are paying 12% interest. What is the value of one of XYZ's r words, what should the price be?

### Variables

C = coupon payment = \$100.00 (Par Value \* Coupon Rate)

n = number of years = 10

i = market rate, or required yield = 12.000% = 0.12

k = number of coupon payments in 1 year = 2

P = value at maturity, or par value = 1000

### **Present Value of Ordinary Annuity Formula**

$$BP = C/k * \frac{\left[ 1 - \left[ \frac{1}{(1+i/k)^{nk}} \right] \right]}{i/k} + \frac{P}{(1+i/k)^{nk}}$$

### Plug In The Variables and Solve

$$BP = 100/2 * \frac{\begin{bmatrix} 1 - \begin{bmatrix} \frac{1}{(1 + 0.12/2)^{10^{*}2}} \end{bmatrix} \end{bmatrix}}{0.12/2} + \frac{1000}{(1 + 0.12/2)^{10^{*}2}}$$

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$\left[1 - \left[\frac{1}{3.207}\right]\right]_{1000}$	? Instructions
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BP = 50 * 11.47 + 311.80	Terms Tab  View the instructions field so you don't hav
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You can also find the bond price using a spreadsheet to calculate and sum t

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Ψ00			\$50.00	1.00	
\$41.98			\$50.00	1.50	
\$39.60			\$50.00	2.00	
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\$35.25			\$50.00	3.00	
\$33.25			\$50.00	3.50	
\$31.37			\$50.00	4.00	
\$29.59			\$50.00	4.50	
\$27.92			\$50.00	5.00	
\$26.34			\$50.00	5.50	
\$24.85			\$50.00	6.00	
\$23.44			\$50.00	6.50	
\$22.12			\$50.00	7.00	
\$20.86			\$50.00	7.50	
\$19.68			\$50.00	8.00	
\$18.57			\$50.00	8.50	
\$17.52			\$50.00	9.00	
\$16.53			\$50.00	9.50	
\$15.59			\$50.00	10.00	
\$311.80		\$1,000.00		10.00	
\$885.30		TOTAL			

### Why Do Bond Prices Change?

the coupon payments, like this:

Since the price of bonds trend in the opposite direction of interest rates, the price an investor is wi tends to decrease as interest rates rise, and increase as interest rates decline. If this sounds conf a simple example will help clear the air.

Why Bond Prices and Interest Rates Move In Opposite Directions

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Exhibit Exhibit A - Mark Elliot Declaration with Exhibits Page 11 of 27

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### **Bond Value Calculator**

you were looking to sell your 7% bond, you would need to discount the price would achieve the same total return being offered by the bond paying 8%.

Using the bond valuation formula that's built into the bond value calculator,  $\nu$  need to be able to purchase your \$1,000 bond for \$960.07 in order to get th

On the other hand, **suppose market interest rates fall**, thereby causing be coupon rate. If you were looking to sell your 7% bond, your bond is obvious

In this case, using the bond valuation formula we can see that an investor s bond for \$1,042.12, as that price would still net the investor the same total r

Those two examples should help to explain why interest rates have an invergood thing they have this inverse relationship.

### The Function of Price Fluctuations

The underlying reason bond prices rise and fall is to bring the rates of older not for these price fluctuations there would be no liquidity in the bonds mark would be willing to buy bonds at par value if the bonds were paying lower in issuers would not issue bonds if doing so would cause them to pay a higher money elsewhere.

### Maturities and the Effects of Interest Rate Changes

The more you use the bond value calculator, the more it should become cle rates have on the price of a bond tend to become less and less the closer it interest rate risk (risk of missing out on higher interest rates) decreases the

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Data record: None

Par value (\$):

Coupon rate (%):

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Current m	arket rate (%):		2.0
Years to n	naturity (#):		7
	Calculate Bond	Price	
Bond valu	e:		\$1,064.
	Given the current mark bond, a bond with a fac a coupon rate of 4.875' annually), should be se premium). Here is how	ce value of \$9 % (compound Illing for \$1,0	930.00 and payin ding semi- 64.61 (selling at
Variables			
C = coupon pa	yment = \$45.34 (Par Value *	Coupon Rate	:)
n = number of	years = 7		
	, or required yield = 2.600%		
	coupon payments in 1 year :	= 2	
	aturity, or par value = 930 of Ordinary Annuity Form	ula	
	$\frac{1 - \left[\frac{1}{(1 + i/k)^{nk}}\right]}{i/k}$ ariables and Solve	+ P (1 + i/k) <sup>nk</sup>	
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You can also find the bond price using a spreadsheet to calculate and sum the present values of the par value and all of the coupon payments, like this:

End of Year	Interest	Principal	Present Value

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### **Bond Value Calculator**

2.00	\$22.67		\$21.53
2.50	\$22.67		\$21.25
3.00	\$22.67		\$20.98
3.50	\$22.67		\$20.71
4.00	\$22.67		\$20.44
4.50	\$22.67		\$20.18
5.00	\$22.67		\$19.92
5.50	\$22.67		\$19.67
6.00	\$22.67		\$19.41
6.50	\$22.67		\$19.16
7.00	\$22.67		\$18.92
7.00		\$930.00	\$776.16
		TOTAL	\$1,064.61

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### Bond Valuation Example

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### Variables

C = coupon payment = \$100.00 (Par Value \* Coupon Rate)

n = number of years = 10

i = market rate, or required yield = 12.000% = 0.12

k = number of coupon payments in 1 year = 2

P = value at maturity, or par value = 1000

### Present Value of Ordinary Annuity Formula

$$BP = C/k * \frac{ \left[ 1 - \left[ \frac{1}{(1+i/k)^{nk}} \right] \right]}{i/k} + \frac{P}{(1+i/k)^{nk}}$$

### Plug In The Variables and Solve

$$BP = 100/2 * \frac{\begin{bmatrix} 1 - \begin{bmatrix} \frac{1}{(1 + 0.12/2)^{10^{*}2}} \end{bmatrix} \end{bmatrix}}{0.12/2} + \frac{1000}{(1 + 0.12/2)^{10^{*}2}}$$

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**Bond Value Calculator** 

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BP = 573.50 + 311.80	
BP = \$885.30	

### Or Solve Using Spreadsheet

You can also find the bond price using a spreadsheet to calculate and sum t the coupon payments, like this:

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A "Pocket" Calculator

calculate an amount

				more room for the ca
End of Year	Interest	Principal	Prese	Calaulatan Buatanan
0.50	\$50.00			
1.00	\$50.00			\$44.50
1.50	\$50.00			\$41.98
2.00	\$50.00			\$39.60
2.50	\$50.00			\$37.36
3.00	\$50.00			\$35.25
3.50	\$50.00			\$33.25
4.00	\$50.00			\$31.37
4.50	\$50.00			\$29.59
5.00	\$50.00			\$27.92
5.50	\$50.00			\$26.34
6.00	\$50.00			\$24.85
6.50	\$50.00			\$23.44
7.00	\$50.00			\$22.12
7.50	\$50.00			\$20.86
8.00	\$50.00			\$19.68
8.50	\$50.00			\$18.57
9.00	\$50.00			\$17.52
9.50	\$50.00			\$16.53
10.00	\$50.00			\$15.59
10.00		\$1,000.00		\$311.80
		TOTAL		\$885.30

### Why Do Bond Prices Change?

Since the price of bonds trend in the opposite direction of interest rates, the price an investor is wi tends to decrease as interest rates rise, and increase as interest rates decline. If this sounds conf a simple example will help clear the air.

Why Bond Prices and Interest Rates Move In Opposite Directions

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**Bond Value Calculator** 

you were looking to sell your 7% bond, you would need to discount the price would achieve the same total return being offered by the bond paying 8%.

Using the bond valuation formula that's built into the bond value calculator, vieed to be able to purchase your 1,000 bond for 90.07 in order to get th

On the other hand, **suppose market interest rates fall**, thereby causing be coupon rate. If you were looking to sell your 7% bond, your bond is obviously

In this case, using the bond valuation formula we can see that an investor s bond for \$1,042.12, as that price would still net the investor the same total r

Those two examples should help to explain why interest rates have an invergood thing they have this inverse relationship.

### The Function of Price Fluctuations

The underlying reason bond prices rise and fall is to bring the rates of older not for these price fluctuations there would be no liquidity in the bonds mark would be willing to buy bonds at par value if the bonds were paying lower in issuers would not issue bonds if doing so would cause them to pay a higher money elsewhere.

### Maturities and the Effects of Interest Rate Changes

The more you use the bond value calculator, the more it should become cle rates have on the price of a bond tend to become less and less the closer it interest rate risk (risk of missing out on higher interest rates) decreases the

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**Help and Tools** Instructions Glo Gen appl Instructions Tab View the steps for us page. Bond Value Calculator to Calculate and Learn Valuation/Pricin Terms Tab View the instructions This free online Bond Value Calculator will calculate the expected trading price of field so you don't hav par value, coupon rate, market rate, interest payments per year, and years-to-ma popup help buttons (i Plus, the calculated results will show the step-by-step solution to the bond valua Data Tab as a chart showing the present values of the par value and each coupon paymer Save this calculator's next visit so you won If you don't know the answer to the questions, "What are bonds?", "How do you of a bond?", or "How do bonds work?", be sure to visit the <u>Yield to Maturity Cal</u> PCalc Tab @ ezoic report this ad includes a basic definition of bonds and a brief explanation of how they work. A "Pocket" Calculator calculate an amount Also on this page: · How to calculate the value of a bond. **Hide Button** Love the calculators but Hide the "Help and To not the ads? · Why do bond prices change? more room for the ca Take a sneak peek at the Why do bond prices and interest rates move in opposite directions? Calculator Broforor Ad-Free Design being enjoyed by hundreds of members for less than 25¢ a week. Full details and a bonus!

Calculator Preferences (Click to change width of calculator)

# Bond Value Calculator Calculate the expected trading price of a bond. New! Save your entries under the Data tab. Data record: None Load Sample Entries Reset Par value (\$): 930 Coupon rate (%): 8.125

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### **Bond Value Calculator** Current market rate (%): Z.D **Help and Tools** 7 Instructions Years to maturity (#): Glo **Calculate Bond Price** Gen appl \$1,256.91 Bond value: Instructions Tab Given the current market rate of 2.600% for a similar View the steps for us bond, a bond with a face value of \$930.00 and paying page. a coupon rate of 8.125% (compounding semiannually), should be selling for \$1,256.91 (selling at a Terms Tab premium). Here is how I arrived at my answer: View the instructions field so you don't hav popup help buttons (i **Variables** C = coupon payment = \$75.56 (Par Value \* Coupon Rate) Data Tab Save this calculator's n = number of years = 7 next visit so you won i = market rate, or required yield = 2.600% = 0.03 PCalc Tab k = number of coupon payments in 1 year = 2 A "Pocket" Calculator P = value at maturity, or par value = 930 calculate an amount **Present Value of Ordinary Annuity Formula Hide Button** Hide the "Help and To more room for the ca Calculator Broforon Plug In The Variables and Solve $1 - \left[ \frac{1}{(1 + 0.0260/2)^{7*2}} \right]$ $(1 + 0.0260/2)^{7*2}$ $\frac{\left[1 - \left[\frac{1}{(1+0.0130)^{14}}\right]\right]}{0.0130}$

# BP = $37.78 * \frac{1 - 0.8346}{0.0130} + \frac{930}{1.198}$ BP = $37.78 * \frac{1 - 0.8346}{0.0130} + \frac{930}{1.198}$ BP = $37.78 * \frac{0.1654}{0.0130} + 776.16$ BP = 37.78 \* 12.72 + 776.16BP = 480.75 + 776.16BP = \$1,256.91

### Or Solve Using Spreadsheet

You can also find the bond price using a spreadsheet to calculate and sum the present values of the par value and all of the coupon payments, like this:

End of Year	Interest	Principal	Present Value

**Bond Value Calculator** 

2.00	\$37.78		\$35.88				
2.50	\$37.78		\$35.42				
3.00	\$37.78		\$34.96				
3.50	\$37.78		\$34.52				
4.00	\$37.78		\$34.07				
4.50	\$37.78		\$33.63				
5.00	\$37.78		\$33.20				
5.50	\$37.78		\$32.78				
6.00	\$37.78		\$32.36				
6.50	\$37.78		\$31.94				
7.00	\$37.78		\$31.53				
7.00		\$930.00	\$776.16				
		TOTAL	\$1,256.91				

Tap the **Data** tab to save this set of entries to your current web browser so you won't have to start over from scratch on your next visit. Subscribe to the <u>Ad-Free Cloud Version</u> to save your entries to a secure online database, allowing you to access your saved entries from any device or web browser.

### Reset

If you received value from this calculator, please pay it forward with a Share, Like, Tweet, Pin, or Link. Thank you! -Dan

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You may us update.	e my email to send me "What's New" monthly
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### Learn

What bond valuation is and how to calculate the value of a bond.

### What is Bond Valuation?

Bond valuation is a method used to determine the expected trading price of a bond.

The expected trading price is calculated by adding the sum of the present values of all coupon payments to the present value of the par value (no worries, the bond value calculator performs all of the calculations for you, and shows its work).

### How To Calculate The Value of a Bond

Since the value of a bond is equal to the sum of the present values of the par value and all of the coupon payments, we can use the *Present Value of An Ordinary Annuity Formula* to find the value of a bond.

### **Bond Valuation Example**

Suppose XYZ issues ten-year bonds (par value of \$1,000.00) with an annual coupon rate of 10% semi-annually. Similar 10-year bonds are paying 12% interest. What is the value of one of XYZ's r words, what should the price be?

### Variables

C = coupon payment = \$100.00 (Par Value \* Coupon Rate)

n = number of years = 10

i = market rate, or required yield = 12.000% = 0.12

k = number of coupon payments in 1 year = 2

P = value at maturity, or par value = 1000

### Present Value of Ordinary Annuity Formula

$$BP = C/k * \frac{ \left[ 1 - \left[ \frac{1}{(1+i/k)^{nk}} \right] \right]}{i/k} + \frac{P}{(1+i/k)^{nk}}$$

### Plug In The Variables and Solve

$$BP = 100/2 * \frac{\begin{bmatrix} 1 - \begin{bmatrix} \frac{1}{(1 + 0.12/2)^{10^{*}2}} \end{bmatrix} \end{bmatrix}}{0.12/2} + \frac{1000}{(1 + 0.12/2)^{10^{*}2}}$$

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1.50	\$50.00			\$41.98	
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2.50	\$50.00			\$37.36	
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3.50	\$50.00			\$33.25	
4.00	\$50.00			\$31.37	
4.50	\$50.00			\$29.59	
5.00	\$50.00			\$27.92	
5.50	\$50.00			\$26.34	
6.00	\$50.00			\$24.85	
6.50	\$50.00			\$23.44	
7.00	\$50.00			\$22.12	
7.50	\$50.00			\$20.86	
8.00	\$50.00			\$19.68	
8.50	\$50.00			\$18.57	
9.00	\$50.00			\$17.52	
9.50	\$50.00			\$16.53	
10.00	\$50.00			\$15.59	
10.00		\$1,000.00		\$311.80	
		TOTAL		\$885.30	

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Coupon: 4 % Maturity Date: 08/01/2020

Dated Date: 12/13/2011
Initial Offering Price/Yield: 107.16%
Principal Amount at Issuance: \$3,405,000
Closing Date: 12/13/2011



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